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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Dayton, Ohio

Docket No. 10994

Application of:

DURRANT, D. J. et al.   Group Art Unit: 2125

Serial No. 09/541,137   Examiner: RAO, SHEELA S.

Filed: March 31, 2000

For: **METHOD AND SYSTEM FOR IDENTIFYING MANUFACTURING ANOMALIES IN A MANUFACTURING SYSTEM**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

BRIEF ON APPEAL

Sir:

This is an appeal under 37 CFR 41.3 to the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office from the final rejection of claims 1 through 12 of the above-identified patent application. The claims were finally rejected in an Office Action dated June 15, 2005.

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(1) REAL PARTY IN INTEREST

The present application is assigned to NCR Corporation.

(2) RELATED APPEALS AND INTERFERENCES

There are currently no known active appeals or interferences related to the present application.

(3) STATUS OF CLAIMS

Claims 1 through 12 are pending in the application.

Claims 1 through 12 are all rejected and are being appealed. Such claims are shown in the Appendix attached to this Appeal Brief

(4) STATUS OF AMENDMENTS

A response to the Final Rejection dated June 15, 2005 has not been filed.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

<u>Claim 1</u>

Independent claim 1 recites a method for identifying manufacturing anomalies in a manufacturing system comprising a plurality of products which are manufactured with a plurality of manufacturing parameters, the method comprising the steps of:

storing the plurality of manufacturing parameters in a data warehouse;

applying a data mining program to perform the steps of:

analyzing the stored manufacturing parameters to define a first normal manufacturing parameter subset;

detecting at least one of the plurality of manufacturing parameters that is excluded from the first normal subset; and

reporting the at least one detected manufacturing parameter.

Figure 1 depicts a flow diagram illustrating a method for identifying manufacturing anomalies in a manufacturing system comprising a plurality of products which are manufactured with a plurality of manufacturing parameters. The step of storing the plurality of manufacturing parameters in a data warehouse is illustrated as step 300. The step of applying a data mining program to analyze the stored manufacturing parameters to define a first normal manufacturing parameter subset is illustrated as step 302. The step of detecting at least one of the plurality of manufacturing parameters that is excluded from the first normal subset is shown as step 304. The step of reporting the at least one detected manufacturing parameter is shown as step 306. Steps 300 through 306 are discussed in the present application on page 5, lines 7 through 18.

Claim 7

Independent claim 7 recites a system for identifying manufacturing anomalies in a manufacturing system comprising a plurality of products which are manufactured with a plurality of manufacturing parameters, comprising:

a data warehouse for storing the plurality of manufacturing parameters;

a data mining program applied to the data warehouse for analyzing the stored manufacturing parameters to define a first normal manufacturing parameter subset and detecting at least one of the plurality of manufacturing parameters that is excluded from the first normal subset; and

a reporting means for reporting the at least one detected manufacturing parameter.

Figure 2 depicts a block diagram showing an exemplary structure of a system system for identifying manufacturing anomalies in a manufacturing system comprising a plurality of products which are manufactured with a plurality of manufacturing parameters. Figure 2 shows a data warehouse 57 for storing a plurality of manufacturing parameters 20; a data mining program 54 applied to the data warehouse 57 for analyzing the stored manufacturing parameters 20 to define a first normal manufacturing parameter subset 102 and detecting at least one of the plurality of manufacturing parameters that is excluded from the first normal subset; and a reporting means 70 for reporting the at least one detected manufacturing parameter. A discussion of data warehouse 57, data mining program 54, and reporting means 70 is contained on page 6, lines 1 though 15, or the present application.

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1 through 12 were properly rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,381,556 issued to Kazemi et al.

(7) ARGUMENT

The rejection under 35 U.S.C. §102(e) of each of the claims of the present application is respectfully traversed. The present application describes and claims a system and method that stores product manufacturing parameters within a database, analyzes the stored product manufacturing parameters to define one or more normal parameter subsets, and detects manufacturing parameters that are not contained within a normal subset in order to identify manufacturing anomalies. The present application includes two independent claims, claims 1 and 7. The remaining claims in the present application depend from claim 1 or claim 7. Independent method claim 1 recites:

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1.   A method for identifying manufacturing anomalies in a manufacturing system comprising a plurality of products which are manufactured with a plurality of *manufacturing parameters*, the method comprising the steps of

storing the plurality of *manufacturing parameters* in a data warehouse;

applying a data mining program to perform the steps of:

analyzing the stored *manufacturing parameters* to define a first normal manufacturing parameter subset;

detecting at least one of the plurality of *manufacturing parameters* that is excluded from the first normal subset; and

reporting the at least one detected *manufacturing parameter*. (emphasis added)

Independent apparatus claim 7 recites:

7.   A system for identifying manufacturing anomalies in a manufacturing system comprising a plurality of products which are manufactured with a plurality of *manufacturing parameters*, comprising:

a data warehouse for storing the plurality of *manufacturing parameters*;

a data mining program applied to the data warehouse for analyzing the stored *manufacturing parameters* to define a first normal manufacturing parameter subset and detecting at least one of the plurality of *manufacturing parameters* that is excluded from the first normal subset; and

a reporting means for reporting the at least one detected *manufacturing parameter*. (emphasis added)

It is believed that the invention as recited in each one of the claims of the present application differs from the system taught in Kazemi et al. Kamezi et al.

discloses a method and system which analyzes raw data derived from a manufacturing control facility. The cited reference describes "raw data" as including data describing pass/fail performance of circuit boards associated with a process and individual assemblers, i.e., test data. In contrast, the method and system recited in claims 1 and 7, respectively, of the present application stores product manufacturing parameters within a database, analyzes the stored product manufacturing parameters to define one or more normal parameter subsets, and detects manufacturing parameters that are not contained within a normal subset in order to identify manufacturing anomalies.

The present Official Action erroneously equates Applicant's manufacturing parameters with the "raw data" described in Kazemi et al. These two elements are not equivalent. The present application includes as examples of manufacturing parameters: the tolerance of a lot of resistors, the threshold of a lot of resistors, the capacitance of a lot of capacitors, the reactance of a lot of capacitors, the supplier from which a lot originated, the shipping method used for transporting a lot of components, and the time of year that a lot of components was manufactured. Clearly, the shipping method used for transporting a lot of components, or the time of year that a lot of components was manufactured cannot be considered raw data as described in the cited reference to Kazemi et al.
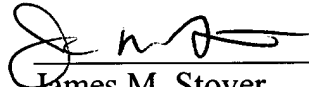
The present Official Action uses the terms "raw data" and "manufacturing parameters" interchangeable in discussing Kamezi et al, yet nowhere in Kamezi et al. is the term "manufacturing parameters" used. The terms "performance parameters" and "report parameters" do appear in Kazemi et al., but their use and description clearly differ from the "manufacturing parameters" described in the present application. Kamezi et al also describes the setting of various parameters to define data or test limits. This use of the term "parameters" also clearly differs from the "manufacturing parameters" described in the present application. It is

not seen that any equivalence to the "manufacturing parameters" described in the present application is described in Kazemi et al.

It is believed that the claims of the present application are patentable over the cited reference to Kazemi et al. Kamezi et al does not teach or suggest a system that stores product manufacturing parameters within a database, analyzes the stored product manufacturing parameters to define one or more normal parameter subsets, and detects manufacturing parameters that are not contained within a normal subset in order to identify manufacturing anomalies.

Review of the present application and claims with consideration of the foregoing comments, and reconsideration of the rejection of claims 1 through 12, are respectfully requested.

Respectfully submitted,

James M. Stover
Reg. No. 32,759

NCR Corporation
1700 South Patterson Blvd., WHQ3
Dayton, Ohio 45479-0001
Tel. No. (937) 445-7663
Fax No. (937) 445-6794

(8) CLAIMS APPENDIX

1. (original) A method for identifying manufacturing anomalies in a manufacturing system comprising a plurality of products which are manufactured with a plurality of manufacturing parameters, the method comprising the steps of:

storing the plurality of manufacturing parameters in a data warehouse;

applying a data mining program to perform the steps of:

analyzing the stored manufacturing parameters to define a first normal manufacturing parameter subset;

detecting at least one of the plurality of manufacturing parameters that is excluded from the first normal subset; and

reporting the at least one detected manufacturing parameter.

2. (original) The method of claim 1, wherein the step of applying the data mining program comprises detecting that a plurality of the manufacturing parameters are excluded from the first normal subset.

3. (original) The method of claim 2, wherein the step of applying the data mining program further comprises analyzing the detected plurality of manufacturing parameters to define a second normal subset of the detected plurality of manufacturing parameters.

4. (original) The method of claim 3, comprising reporting the second normal subset of manufacturing parameters.

5. (original) The method of claim 4, wherein the first normal subset of manufacturing parameters is defined by categorizing the manufacturing parameters in an n-dimensional space.

6. (original) The method of claim 5, wherein the second normal subset of manufacturing parameters is defined by categorizing the manufacturing parameters excluded from the first normal subset in the n-dimensional space using the data mining program.

7. (original) A system for identifying manufacturing anomalies in a manufacturing system comprising a plurality of products which are manufactured with a plurality of manufacturing parameters, comprising:

a data warehouse for storing the plurality of manufacturing parameters;

a data mining program applied to the data warehouse for analyzing the stored manufacturing parameters to define a first normal manufacturing parameter subset and detecting at least one of the plurality of manufacturing parameters that is excluded from the first normal subset; and

a reporting means for reporting the at least one detected manufacturing parameter.

8. (original) The system of claim 7, wherein the data mining program is for detecting that a plurality of the manufacturing parameters are excluded from the first subset.

9. (original) The system of claim 8, wherein the data mining program is further for analyzing the detected plurality of manufacturing parameters to define a second normal subset of the detected plurality of manufacturing parameters.

10. (original) The method of claim 9, wherein the reporting means is for reporting the second normal subset of manufacturing parameters.

11. (original) The system of claim 10, wherein the data mining program is for defining the first normal subset of manufacturing parameters by categorizing the manufacturing parameters in an n-dimensional space.

12. (original) The system of claim 11, wherein the data mining program is for defining the second normal subset of manufacturing parameters by categorizing the manufacturing parameters excluded from the first normal subset in the n-dimensional space.

(9) EVIDENCE APPENDIX

Not applicable

(10) RELATED PROCEEDINGS APPENDIX

Not applicable

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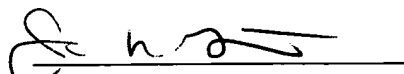P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF TRANSMITTAL LETTER

Sir:

Transmitted herewith for filing is an Appeal Brief to the Final Rejection dated

June 15, 2005.

☒ Please charge Deposit Account No. 14 0225 for the Appeal Brief fee or any other

fees associated with the filing of said Appeal Brief.

☒ Please charge any additional fees to the account of NCR Corporation, Deposit

Account No. 14 0225.

Respectfully submitted,

James M. Stover
Reg. No. 32,759

NCR Corporation
Dayton, Ohio
Tel. No. (937) 445-7663
Fax No. (937) 445-6794

CERTIFICATION OF MAILING UNDER 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as
first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria,
VA 22313-1450 on December 15, 2005

By: _____

Name: _Sallie Spicer_